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| APPLICATION NO.           | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---------------------------|-------------|----------------------|---------------------|------------------|
| 09/731,891                | 12/06/2000  | Steven Teig          | SPLX.P0002          | 1036             |
| 23349                     | 7590        | 10/21/2004           | EXAMINER            |                  |
| STATTLER JOHANSEN & ADELI |             |                      | DO, THUAN V         |                  |
| P O BOX 51860             |             |                      | ART UNIT            |                  |
| PALO ALTO, CA 94303       |             |                      | PAPER NUMBER        |                  |

2825

DATE MAILED: 10/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                    |   |
|------------------------------|--------------------------------------|------------------------------------|---|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/731,891 | <b>Applicant(s)</b><br>TEIG ET AL. |   |
|                              | <b>Examiner</b><br>Thuan Do          | <b>Art Unit</b><br>2825            |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 4-13, 43-64 and 88-96 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4-10, 12, 13, 43-45, 48, 49, 51-64 and 88-96 is/are rejected.
- 7) ☒ Claim(s) 11, 46, 47, 50 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8-16-04</u> | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This final office action is responsive to amendment entered on 08/09/2004. Claims 4-13,43-64,88-96 are pending in this office action. Claims 1-3,14-42,65-87 have been canceled.

#### ***Claim objections***

Claim 4,58,61, the term "during a routing operation" is unclear to what it means by specification. Clarification or correction is required.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in-  
(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or  
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 4-10,12,13,43-45,48,49,51-64,88-96 are rejected under 35 U.S.C. 102(e) as being unpatentable over Kikuchi et al., Pat. No. 6301686.

**Regarding claim 4:** Kikuchi teaches a method comprising:  
using a diagonal line to measure a placement metric (col. 1, lines 23-38);  
wherein using the diagonal line to measure a placement metric comprises calculating an estimate of the length of interconnect lines necessary to connect the circuit elements of said net, wherein the calculation measures the length of at least one line that is at least partially diagonal (col. 10, lines 55-67 where diagonal directions of

length is calculated by an angle of component terminal placement for the function of partially diagonal).

**Regarding claims 5-10,12,13:** These claims teach a well know features similar method of claim 4 and rejected as similar manner.

**Regarding claim 43:** This claim teaches a similar method of claim 4 and rejected as same manner.

**Regarding claims 44,45,48,49,51-57:** These claims teach a well know features similar method of claim 43 and rejected as similar manner.

**Regarding claim 58:** Kikuchi teaches a method comprising:

a) for each particular net, defining a minimum spanning tree (col. 10, lines 55-67 using dividing any directions in the longitudinal for matching minimum spanning tree ) that models the topology of interconnect lines for connecting the circuit elements of the particular net, said minimum spanning trees having edges, wherein at least one of the edges of at least one of the minimum spanning trees is at least partially diagonals (col. 16, lines 4-11 where minimum routing terminals for matching the function of minimum spanning trees and col. 10, lines 55-67 for matching partially diagonal as rejected in claim 1);

b) calculating the length of the edges of the minimum spanning trees (col. 10, lines 55-67 as the same function of calculated by an angle of component terminal placement); and

c) combining the length calculations to obtain an estimate of the total interconnect-line length needed for connecting the circuit elements of the nets (col. 16, lines 22-28 where routing combination to match combining the length calculations claim and col. 11, line 1-18 where comparison of lengths are used in place of estimate of the total interconnect-line length to claim).

**Regarding claims 59,60:** These claims teach a well know features similar method of claim 58 and rejected as similar manner.

**Regarding claim 61:** This claim teaches a similar method of claim 58 and rejected as same manner.

**Regarding claims 62-64:** These claims teach a well know features similar method of claim 61 and rejected as similar manner.

**Regarding claim 88:** This claim teaches a similar method of claim 4 since wherein at least two some of the edges are neither parallel nor orthogonal to each other is another language of partial diagonal connection and rejected as same manner.

**Regarding claims 89-96:** These claims teach a well know features similar method of claim 88 and rejected as similar manner.

### ***Allowable Subject Matter***

Claims 11,46,47,50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

Applicant's arguments have been considered but not persuasive by resulting of above action and the following reasons:

Applicant said that Kikuchi does not teach a placement metric by measuring length of one line that is at least partial diagonal to calculate an estimate of the length of interconnect lines of the net during a routing operation.

Kikuchi teaches calculates a direction connecting from the component terminal A to the component terminal B to obtain a distance between the component terminal A and the component terminal B as a length of the third graph for determination 2 lines (two components of the same net are formulated by an angled node and 2 terminals A and B) of an angle that meets the limitation of the claim. That calculation is performed in routing process as indicated at least in figure 5, boxes s411, s412 for matching the new adding area of "during a routing operation" and the lengths in formulated angles (capacity area) including diagonal lines obviously are taught in col. 11, lines 1-18.

In consequence, Kikuchi determines the length of partial diagonal line represented by combination of calculated terminal A and B and a node after the length calculation of the third graph.

Applicant said that the prior art does not teach using the placement metric to identify a placement of the circuit models.

Kikuchi teaches determining the order of placement (placement metric) with the segment data in a coordinate system in col. 10, lines 1-23 and calculating terminal for length segments in figure 20, at least boxes S501, S502 and S503 that is considered as a module for determination repeatedly for connection graph that meets the claimed limitation.

For those reasons the final rejection is established.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

#### **CONTACT INFORMATION**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan Do whose telephone number is 571-272-1891. The examiner can normally be reached on Monday-Friday 8:30-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on 571-272-1907. The fax phone numbers for the organization where this application or proceeding is assigned are 703 305-3431 for regular communications and 703-305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0596.



Thuan Do  
Primary examiner  
10/19/04